Epidemiology of Patients meeting the South Carolina Prehospital Sepsis Care Protocol

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Introduction

Paramedic-Initiated CMS Sepsis Core Measure Bundle Prior to Hospital Arrival: A Stepwise Approach

Jason G. Walchok NRP, FP-C, Ronald G. Pirrallo MD, MHSA, FACEP, Douglas Furmanek PharmD, BCPS, Martin Lutz MD, FACEP, Colt Shope BSN, RN, Brandi Giles APRN, Greta Gue MSN, RN & Aaron Dix MBA, NRP

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Introduction

EMS EVALUATION AND TREATMENT OF SEPSIS – TOOL

<table>
<thead>
<tr>
<th>Date:</th>
<th>EMS Arrival Time:</th>
<th>Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Medic:</td>
<td>Culture Drawn by:</td>
<td></td>
</tr>
</tbody>
</table>

Evaluation for Sepsis:

1. Are any two of the following symptoms present AND new to the patient?
   - Hyperthermia (> 101 °F or 38 °C) or Hypothermia (< 96.8 °F or 36 °C)
   - Heart Rate > 90 beats per minute
   - Respiratory Rate > 20 breaths per minute OR Mechanical Ventilation
   - Signs of poor perfusion (such as SBP < 90 mmHg)

2. Is the patient’s presentation suggestive of any of the following infections?
   - Pneumonia (cough/thick sputum)
   - Urinary Tract Infection
   - Acutely AMS / change
   - Blood stream / Catheter related
   - Abdominal pain and/or diarrhea
   - Wound Infection
   - Skin / Soft Tissue Infection

If positive for sepsis, call a SEPSIS ALERT and follow the directions on the below:

<table>
<thead>
<tr>
<th>Glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result: mg/dL</td>
</tr>
<tr>
<td>Normal Range 80 – 120 mg/dL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result:</td>
</tr>
</tbody>
</table>
Objective

- To quantify the number of 2016 emergency 911 patients in South Carolina (SC) that would meet the newly developed prehospital sepsis care protocol.

- To describe the identified patients based on patient demographics and incident location community size.
Methods

SC State EMS Data System

2016, 911 EMS Patients

Age > 18 y/o

2 or more SIRS criteria

Excluded: Cardiac Arrest / Trauma calls

Number of patients meeting SIRS

Number of SIRS met

Level of Consciousness

Provider primary impression

Primary symptom

Demographics
Results

- 5,155 patients met SIRS criteria

![Bar chart showing the providers' primary impressions]

- Breathing Problems: 1,332 (29.5%)
- Change in Responsiveness: 1,063 (23.6%)
- Fever: 436 (9.7%)
- Pain: 424 (9.4%)
- Weakness: 396 (8.8%)
- None: 181 (4.0%)
Reported Primary Symptoms

- Respiratory Distress: 1,257 (36.7%)
- Altered Level of Consciousness: 660 (19.3%)
- Abdominal Pain/Problems: 269 (7.9%)
- Chest Pain/Discomfort: 179 (5.2%)
- Cardiac Rhythm Disturbance: 155 (4.5%)
- Hypovolemia/Shock: 140 (4.1%)
## Demographics

n= 5,155

<table>
<thead>
<tr>
<th>Age: range 18-116 years</th>
<th>mean 63.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex:</td>
<td>Number</td>
</tr>
<tr>
<td>Female</td>
<td>2,596</td>
</tr>
<tr>
<td>Male</td>
<td>2,548</td>
</tr>
<tr>
<td>Race:</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>3,552</td>
</tr>
<tr>
<td>Black</td>
<td>1,440</td>
</tr>
<tr>
<td>Other</td>
<td>64</td>
</tr>
<tr>
<td>Not Hispanic or Latino</td>
<td>4,733</td>
</tr>
<tr>
<td>Receiving Location:</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>4,534</td>
</tr>
<tr>
<td>Rural</td>
<td>587</td>
</tr>
<tr>
<td>SIRS Criteria:</td>
<td></td>
</tr>
<tr>
<td>2 of 4</td>
<td>4,831</td>
</tr>
<tr>
<td>3 of 4</td>
<td>317</td>
</tr>
<tr>
<td>4 of 4</td>
<td>7</td>
</tr>
</tbody>
</table>

### Patient alertness encountered by EMS

- Alert: 3,536 (74.1%)
- Responsive to Verbal Stimuli: 459 (10.1%)
- Responsive to Painful Stimuli: 482 (10.1%)
- Unresponsive: 297 (6.2%)
Limitations

• Using NEMSIS v2 data elements, it was not possible to determine a present source of infection which is required for the SC sepsis protocol.

• Being a retrospective review from a large geographical area, the consistency of provider documentation and assessment could not be verified.
Conclusion

• Respiratory distress was the primary patient presentation when SIRS criteria was used as a screening tool for septic patients in the prehospital setting.

• Directed education - Pulmonary source of sepsis
• ABX selection
CONTACT US

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